AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Please cancel claims 1-39.

40. (New) A microfabricated device for fragmenting nucleic acids present in a fluid sample, the device comprising an inlet port, a fragmentation cell, and an outlet port downstream from said inlet port, said cell being in fluid communication with said ports, and wherein said outlet port is dimensioned to impede the flow of a fluid sample out of said cell so as to effect shearing of nucleic acids molecules therein, wherein the fragmentation cell comprises a chamber having a bottom wall in which is formed the outlet port, the bottom wall being generally perpendicular to the direction of flow of fluid through the outlet port, and wherein the fragmentation cell has a top wall in which the inlet port is formed, and side walls which extend from the top wall to the bottom wall, and wherein the side walls taper inwardly to meet the inlet port.

41. (New) A microfabricated device as claimed in claim 1, wherein the fragmentation cell has the shape of an irregular polygon, preferably an irregular hexagon, with an essentially straight bottom wall in which the outlet port is formed at approximately the mid point, and wherein the bottom wall is

substantially perpendicular to the longitudinal axis of the outlet port.

42. (New) A microfabricated device as claimed in claim 1, wherein the fragmentation cell is generally pear shaped with an essentially straight bottom wall in which the outlet port is formed at approximately the mid point, the bottom wall being substantially perpendicular to the longitudinal axis of the outlet, and wherein the bottom wall is connected by curved walls to side walls, which converge or taper inwardly to meet the inlet port.

43. (New) A microfabricated device as claimed in claim 1, wherein the width of the fragmentation cell abruptly decreases at the outlet port.

44. (New) A microfabricated device as claimed in claim 1, wherein the outlet port comprises a constriction, preferably having a width in the range of from 1 to 100 μm, more preferably from 5 to 50 μm.

45. (New) A microfabricated device as claimed in claim 1, wherein the outlet port is formed in approximately the middle of the bottom wall.

46. (New) A microfabricated device as claimed in claim 1, wherein the side walls taper inwardly to meet the outlet port.

47. (New) A microfabricated device as claimed in claim 1, wherein the bottom wall is adjacent and substantially perpendicular to two lower side wall portions.

48. (New) A microfabricated device as claimed in claim 8, wherein the upper portions of the side walls taper inwardly to meet the inlet port.

49. (New) A microfabricated device as claimed in claim 1, wherein side walls or portions thereof next to or adjacent the inlet port subtend an angle of less than 90 degrees to the longitudinal axis of the inlet port.

50. (New) A microfabricated device as claimed in claim 1, wherein the fragmentation cell comprises a bottom wall in which the outlet port is formed at approximately the mid point, the bottom wall being substantially perpendicular to the longitudinal axis of the outlet, and side walls which converge or taper inwardly to meet the inlet port.

51. (New) A microfabricated device as claimed in claim 1, wherein the device further comprises an obstacle located in the cell in the direct path between the inlet and outlet ports.

52. (New) A microfabricated device as claimed in claim 12, wherein the space between sides of the obstacle and sides of the cell defines a bifurcated path for the fluid sample.

53. (New) A microfabricated device as claimed in claim 12, wherein the obstacle is shaped so that the flow path of a fluid sample in a region adjacent the outlet port is substantially perpendicular to the longitudinal axis of the outlet.

54. (New) A microfabricated device as claimed in claim 12, wherein the obstacle is in the form of a generally triangular obstacle, with its three sides substantially parallel to the bottom wall and side walls of the cell, the space between the sides of the obstacle and the sides of the cell defining a bifurcated path for the fluid sample.

55. (New) A microfabricated device as claimed in claim 1, wherein the fragmentation cell is asymmetric about the horizontal axis and substantially symmetric about the longitudinal axis, the longitudinal axis being essentially coincident with the direction of flow.

56. (New) A microfabricated device as claimed in claim 1, further comprising an access channel in fluid communication with the inlet port.

57. (New) A microfabricated device as claimed in claim 1, further comprising collection means in fluid communication with the outlet port.

58. (New) A microfabricated device as claimed in claim 1, further comprising means for effecting flow of a sample into the

inlet port, through the fragmentation cell and out of the outlet port.

59. (New) A microfabricated device as claimed in claim 19, wherein said means for effecting flow comprises one or more pumps.

60. (New) A microfabricated device as claimed in claim 19, wherein said means for effecting flow comprises one or more variable volume chambers in communication with the inlet port and/or outlet port, wherein altering the volume of the variable volume chamber(s) effects and/or restricts flow of a fluid sample into and/or out of the fragmentation cell.

61. (New) A microfabricated device as claimed in claim 1 which comprises a substrate and an overlying cover, the fragmentation cell being defined by a recess in a surface of the substrate and the adjacent surface of the cover.

62. (New) A microfabricated device as claimed in claim 22, wherein the substrate is formed from silicon and the overlying cover from glass.

63. (New) A microfabricated device as claimed in claim 23, wherein the glass cover is anodically bonded to the silicon substrate, optionally through an intermediate silicon oxide layer formed on the surface of the substrata.

64. (New) A microfabricated device as claimed in claim 1 which comprises at least first and second fragmentation cells, the outlet port of the first cell being in fluid communication with the inlet port of the second cell.

65. (New) A microfabricated device as claimed in claim 25, further comprising a third fragmentation cell, the outlet port of the second cell being in fluid communication with the inlet port of the third cell.

66. (New) A microfabricated device as claimed in claim 25 comprising a plurality of serially connected fragmentation cells.

67. (New) A microfabricated device as claimed in claim 25, wherein the size of the outlet port decreases the further down stream the fragmentation cell.

68. (New) A microfabricated device as claimed in claim 28, wherein the size of the outlet port gradually decreases from the first fragmentation cell to the last fragmentation cell downstream.

69. (New) A microfabricated device as claimed in claim 1 for fragmenting nucleic acids present in a biological fluid, a dairy product, an environmental fluid or drinking water.

70. (New) A microfabricated reaction chamber system for carrying out a nucleic acid sequence amplification and detection

process on a nucleic acid sample, the system comprising a microfabricated device as defined in claim 1.

71. (New) An apparatus for the analysis of biological and/or environmental samples, the apparatus comprising a device as defined in claim 1.

72. (New) An assay kit for the analysis of biological and/or environmental samples, the kit comprising a device as defined in any one of claim 1 and means for contacting the sample with the device.

73. (New) An apparatus as claimed in claim 32 which is disposable.

74. (New) A process for fragmenting nucleic acids present in a fluid sample, the process comprising:

(a) providing a device as defined in claim 1;

(b) providing a fluid sample comprising nucleic acids;

(c) pumping the fluid sample into the inlet port of said device, through the fragmentation cell and out of the outlet port; and

(d) collecting the thus fragmented sample at the outlet port.

75. (New) A process as claimed in claim 35 which further involves a nucleic acid sequence amplification and detection process on the fragmented nucleic acid sample.